REMARKS

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and these remarks.

I. Disposition of Claims

Claims 1-2 are requested to be canceled. New claims 4-8 are added. No new matter has been added. Support for new claims 4-8 can be found on pages 5, 6-8, and 11 of the specification. Upon entry of the amendment, claims 3-8 will be pending, with claim 3 withdrawn.

II. Information Disclosure Statement

The Examiner did not consider a document, JP-10-132786, listed in the IDS filed March 3, 2005. Instead, he requested a copy of the document and a concise explanation of its relevance. Office Action, pages 2 & 3.

Applicants concurrently provide a copy of JP-10-132786, including an English abstract. The document is directed to a two-point calibration involving a known internal standard of low molecular weight, such as perfluorotributylamine (PFTBA).

III. Engelhofer does not anticipate the present claims

Claims 1 and 2 are rejected under 35 U.S.C. § 102(b) over Engelhofer *et al.*, *Anal. Chem.* (2002), 74:1760-71 ("Engelhofer"). Office Action, pages 3-5. Although claims 1 and 2 are canceled, the rejection is relevant to current claims 4-8. Applicants respectfully traverse the rejection on the ground that Engelhofer fails to teach all elements of the claims.

As set forth in MPEP § 2131, a claim is anticipated only if each and every element claimed is taught, either explicitly or inherently, in a single prior art reference. The present claims are directed to a biopolymer identifying method that includes MS/MS.

In contrast, Engelhofer does not describe nor fairly suggest MS/MS. Instead, Engelhofer teaches peptide mass fingerprinting, which uses only mass data and, therefore, differs from MS/MS. Engelhofer, page 1764, Figure 2.

The present claims also prescribe a two-part error analysis. In step (d), the measured biopolymer is "calibrated" by calculating a relative error between a measured biopolymer and candidate. *Id.* at 4, 5, and 8; equations (1)-(10). The "calibrated" biopolymer then is subjected to a second error analysis in step (e), where standard deviations of the relative errors are obtained. *Id.* at page 9, equations (11)-(13). The present claims also include a step (f). *Id.* at pages 9 & 10.

Engelhofer fails to describe a two-step error analysis, however. Instead, Engelhofer teaches a process in which relative errors between "matching" peptide sequences from a database and a sample peptide are computed (page 1761, left column, 1st full paragraph). A linear regression analysis then is performed on the relative errors. *Id.* Subsequent to this analysis, a "score" based on various parameters is then calculated for each "matching" peptide, which ranks the peptides in terms of how closely they match the sample peptide. *Id.*

None of this implicates, let alone teaches, the two-part error analysis recited in the present claims. Engelhofer describes only a single instance of calculating relative errors, which is performed under "the initial assumption that each candidate is the correct sequence." *Id.* Pursuant to Applicants' claimed invention, by contrast, one first calibrates the measured value through a first error analysis and then, through a second error analysis, determines relative error between the calibrated measured value and candidate molecules.

The Examiner cited Engelhofer at page 1762 in right column, first full paragraph, for allegedly disclosing a "mass value calibration" step. Office Action, page 5. Yet, the cited section refers to calculations for proving the linear relation between relative error and the mass/charge ratio, *m/z*, which analysis is wholly distinct from an error analysis process, as presently recited, to identify a measured peptide, as described above.

Regarding claim 7, the claim recites a repeating step in which steps (b) through (f) are repeated. The Engelhofer procedure, however, is performed only once. An examination of the reference as a whole reveals no teaching, either explicit or implicit, of repeating the error analysis process described. Accordingly, Engelhofer fails to teach the repeating step of claim 7.

For at least these reasons, Engelhofer is not an anticipatory reference. Accordingly, Applicants request withdrawal of this rejection.

IV. Gobom does not anticipate the present claims

Claims 1 and 2 are rejected under 35 U.S.C. § 102(b) over Gobom *et al.*, *Anal. Chem.* (2002), 74:3915-23 ("Gobom"). Office Action, pages 5 & 6. Although claims 1 and 2 are canceled, the rejection is relevant to current claims 4-8. Applicants traverse the rejection on the ground that Gobom fails to teach all elements of the claims.

Elements prescribed by the present claims are discussed above. Additionally, the claims recite step (b). Applicants respectfully submit that Gobom neither expressly nor inherently teaches any of these elements.

To the contrary, Gobom describes internal and external calibration using poly(propylene glycol) molecules (PPG's) as calibrants (pages 3916 & 3917). Notably, these PPG's are distinct from peptide samples and are used only for calibration, not identification. *Id.* By contrast, the calibration according to the present claims is keyed to a series of candidate molecules that also serve to identify the sampled molecule. Moreover, Gobom does not describe selecting the PPG's from a database, as the present claims require in relation to the candidate molecules. Accordingly, Gobom's description of internal and external calibration using PPG's does not anticipate the present claims.

Gobom separately describes protein identification process "without internal calibration," which is a process similar to that of Engelhofer. *Id.* at pages 3922 & 3923. Thus, the failings of Engelhofer in this regard, as detailed above, affect Gobom as well, precluding the latter's anticipating the presently claimed invention

V. The prior art illustrated by Engelhofer and Gobom does not presage the capabilities and advantages of Applicants' claimed invention

The present claims are directed to methods for identifying different biopolymers simultaneously. As taught on page 5 of the specification, the invention "provides a highly reliable automatic identifying method capable of analyzing complex biopolymer mixtures."

The approach implicated by Engelhofer and Gobom does not allow for such identification. Both references describe mass spectrometric analyses based on the assumption that the measured sample comprises a single compound. For instance, Engelhofer focuses on one

single protein, human β-actin (page 1762, right column, 2nd full paragraph). In other sections, Engelhofer describes the process applied to identifying "the correct protein sequence" of *A. thaliana* and human heat shock cognate 71-kDA protein, respectively. *Id.* at page 1768 in the right column, last paragraph, and at page 1770 in the left column, 1st paragraph.

Thus, a consideration of Engelhofer as a whole reveals no description of identifying different proteins simultaneously. The same deficiency pertains to Gobom, which focuses instead on the internal and external calibration system discussed above. Indeed, neither Engelhofer nor Gobom provides a rationale for such a process. Thus, nothing in the art of record would have pointed the way to modifying the methodology of Engelhofer and Gobom in order to detect multiple compounds simultaneously.

CONCLUSION

Applicants submit that the present application is in condition for allowance, and they request an early indication to this effect. Examiner Borin is invited to contact the undersigned directly, should he feel that any point requires further consideration.

The Commissioner is hereby authorized to charge any additional fees, which may be required under 37 CFR §§ 1.16-1.17, and to credit any overpayment to Deposit Account No. 19-0741. Should no proper payment accompany this response, then the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extension is needed for timely acceptance of submitted papers, Applicants hereby petition for such extension under 37 CFR §1.136 and authorize payment of the relevant fee(s) from the deposit account.

Respectfully submitted,

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By _____

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